

## *On the role of person features in the evidential-temporal connection*

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### **Abstract**

The present article argues that temporality can be computed indirectly via evidentiality, and that this is the case for Paraguayan Guaraní, a tenseless language. To model the evidential–temporal connection, we employ features from the domains of person (*author, participant*) and general deixis (*proximate, distal*). We discuss in detail the case of two evidential morphemes: indirect evidential *ra'e* and reportative *raka'e*. We argue that these particles do not have temporal semantics; rather their temporal contribution is due to the interaction of person features that determine the type of evidentiality and deictic features incorporated into the person system.

**Keywords:** Evidentiality, temporality, person/deictic features, attitude contexts, Guaraní

### **Résumé**

Le présent article défend l'idée que la temporalité peut être calculée indirectement par le biais de l'évidentialité, ce qui est le cas en guaraní paraguayen, une langue sans temps grammatical. Pour modéliser la connexion temporelle–évidentielle, nous utilisons des traits tirés des domaines de la personne (*auteur, participant*) et de la deixis générale (*proximal, distal*). Nous discutons en détail du cas de deux morphèmes évidentiels : *ra'e* (indirect) et *raka'e* (reportatif). Nous soutenons que ces éléments n'ont pas de sémantique temporelle; leur contribution temporelle est plutôt due à l'interaction des traits de personne qui déterminent le genre de traits d'évidentialité et de deixis intégrés au système de personne.

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**Mots clés:** Évidentialité, temporalité, traits de personne et de déixis, contextes d'attitude, guaraní

## 1. INTRODUCTION

At the forefront of syntactic theory is the question of what is the inventory of meaningful (i.e., interpretable) morphosyntactic features that provide the semantically relevant building blocks for natural language grammars.<sup>1</sup> One of those features is tense, which is central to the computation of temporality in many languages. Yet there are languages known to lack tense: one of these is Paraguayan Guaraní; see Tonhauser (2006, 2011a,b), who argues against the presence of covert morphological tense in this language.<sup>2</sup> According to Tonhauser, temporal reference is determined in accordance with a global semantic rule that introduces a topic-time variable in the semantic component, in combination with the usual contributions of aspectual morphemes, temporal adverbials, and context.

Our point of departure is the Minimalist hypothesis that grammatical meaning is constructed by assembling lexical items. Importantly, grammatical meaning cannot be added in the course of the derivation, where “derivation” is construed to include LF and the semantic component (see Chomsky’s 1995 Inclusiveness Principle). Thus, if tense (i.e., a pronoun referring to the topic time) is absent in the syntactic derivation, it is also absent in the semantics. The question then arises as to how Paraguayan Guaraní computes time – a complex question that we do not fully address here. In this article we are concerned with one particular aspect of the grammar of temporal reference in Paraguayan Guaraní, namely the role of two evidential morphemes: the stressless particle *ra’e* (an indirect evidential that requires that the evidence-acquisition event be close to or at evaluation time) and *raka’e* (a reportative evidential of distal past events). We develop two main ideas: first, that features from the domain of person and deixis encode and partially determine evidential contrasts associated with *ra’e* and *raka’e*; and second, that the temporal contribution of these morphemes is derived on the basis of the interaction of their person and deictic features.

A brief and selective discussion of some mechanisms for resolving temporality in Paraguayan Guaraní is provided in section 2.1. In section 2.2, we provide a brief overview of evidentiality, and introduce the general aspects of our syntactic analysis; in section 2.3, we enrich the proposed structure with the person features [participant] and [author] to capture the main types of evidential distinctions. In section 3, we discuss the basic evidential properties of *ra’e* and its analysis in terms of the proposed

<sup>1</sup>The following abbreviations are used: 1P: first person; 2P: second person; 3P: third person; Att-C: Attitude Centre; Att-H: Attitude Holder; CONJ: conjunction; DAT: dative; DEM: demonstrative; DOM: differential object marker; EA: Evidence-acquisition event; Eval: Evaluation; EXCL: exclusive; HC: Homorganic Condition; INCL: inclusive; INT: interrogative; LF: logical form; LOC: locative; *p*: preajacent; PASS: passive; POSS: possessive; PROG: progressive; PRON: pronoun; PST: past; REFL: reflexive; S: Speaker; SG: singular; SUB: subordinator.

<sup>2</sup>See Thomas (2014) for a different view of tense in Mbya Guaraní.

morphosyntax. In section 4, we turn to the temporal–evidential connection, providing a brief background in 4.1 and introducing the role of deictic features [proximate] and [distal] in 4.2. In section 5, we discuss the temporal properties of *ra'e* and propose an analysis that links the temporal and evidential properties of this morpheme through the interaction of the person and deictic features. In section 6, we examine the behavior of *ra'e* in embedded clauses, which provides an argument in favor of the proposed syntax of evidentiality. In section 7, we summarize the properties of *ra'e* and its analysis. In section 8, we turn to the properties of evidential *raka'e* and its morphosyntactic analysis. Section 9 provides an explicit semantics for the proposed morphosyntax for *ra'e* and *raka'e*, and section 10 concludes the paper.<sup>3</sup>

## 2. PRELIMINARIES

This section sets the stage for the proposals to follow, beginning with a brief discussion of some mechanisms for resolving temporality in Paraguayan Guaraní, followed by a short overview of evidentiality, and finally a proposal to extend the person features [participant] and [author] to the domain of evidentiality.

### 2.1 On temporal reference

The aktionsart of morphologically bare predicates is known to play a central role in the present vs. past interpretation of clauses in tenseless languages (e.g., Chinese). As discussed by Tonhauser (2006, 2011a), the aktionsart of bare predicates also plays an important role in the present vs. past interpretation of sentences in Paraguayan Guaraní. Consider the following context: Maria's friend Kalo goes to Maria's house looking for her. Upon opening the door and seeing Kalo, Maria's mother utters the sentence in (1). Given the bounded nature of the event description, the past interpretation imposes itself: *Maria went to the market*. On the other hand, if Kalo's mother were to reply with the sentence in (2), given the unbounded nature of the event description, a present interpretation is obtained: *Maria is bathing*. In

<sup>3</sup>The data reported here is based on fieldwork conducted in Asunción, Paraguay in 2016–17 with eight native speakers of Paraguayan Guaraní, ages 39–76 (3 female and 5 male), born and raised in the central part of the country (Cordillera, Paraguari, Asunción or its periphery). They currently teach Guaraní at the secondary or postsecondary level, or to foreigners, and read and write Guaraní fluently. All are bilingual speakers of Guaraní and Spanish, who either grew up with both languages (Guaraní often being dominant) or learned Guaraní first and Spanish at school age. Most report speaking mostly Guaraní in daily life, with Spanish relegated to the work place. Most of the data on evidentials was obtained via a questionnaire, where the naturalness of a given sentence was judged with respect to two contexts, or two sentences against a single context. The entire questionnaire was in Guaraní and each item was read out loud to the participant by a native Guaraní speaker. The questionnaire items were followed up by questions that allowed the participant to expand and elaborate on their response. The data were also checked (and occasionally expanded) with our current consultant, a female Guaraní teacher from San Pedro, in the northern area of the country). The data reported in section 2.1 was provided by this consultant, and more recently replicated with another native speaker.

order to obtain a present/ongoing event interpretation in the case of (1) (*María is on her way to the market*), the progressive marker *hina* would need to be added, while such a marker is optional in (2).<sup>4</sup>

- (1) María o-ho mercado-pe.  
María 3SG-go market-LOC
- (2) María o-jahu.  
María 3SG-bathe

Such examples indicate that aktionsart plays a role in determining temporal interpretation in the absence of overt aspectual morphemes: a bounded event must be interpreted perfectly, giving rise to a past interpretation, while unbounded events can be interpreted imperfectly, giving rise to a present temporal interpretation.<sup>5</sup>

A temporal indexical adverb like *kuehe* ‘yesterday’ can also provide a past interpretation, by restricting the time of the eventuality to those times that are located in the day before the speaker’s now, as illustrated below.

- (3) Kuehe María o-purahéi.  
yesterday María 3SG-sing  
‘Yesterday, María sang.’

On the other hand, future-oriented meanings are constructed with modals, regardless of aktionsart or aspectual morpheme. One of these is the suffix *-ta*, which is thought to have originated from the modal verb *pota* ‘want’, as illustrated in (4) (Ayala 1996, Kallfell 2016). Tonhauser (2006, 2011a) treats *-ta* as a prospective aspect/modal hybrid category.<sup>6</sup>

<sup>4</sup>If the speaker is describing an event as it unfolds (the so-called *play-by-play* context), then a present interpretation imposes itself, irrespective of aktionsart. Thus, if Kalo sees María walking in the direction of the market carrying a basket, Kalo can describe the scene using (1) with a present interpretation ‘María is going to the market’. We do not discuss *play-by-play* contexts any further in the present paper.

<sup>5</sup>Unbounded predicates can also give rise to a past interpretation if placed in the right context. Suppose that a group of people have the habit of gathering every morning for breakfast, and upon arrival, it is a custom for each person to describe what they did the previous evening. In this context, (i) receives a past interpretation.

- (i) Che a-jahu, a-sena, a-ñeno, ha a-ke  
I 1SG-bathe, 1SG-eat, 1SG-lie-down and 1SG-sleep  
‘I bathed, ate, lay down, and slept.’

<sup>6</sup>Tonhauser (2011a) notes that *-ta* can be omitted in the second of two conjoined clauses, as exemplified in (i), from our questionnaire.

- (i) A-je-juhú-ta kuri María=ndive (ha) ro-karu oñondive  
1SG-REFL-find-TA KURI María=with (and) 1EXCL-eat together  
‘I was going to meet with María and we were going to eat together.’

Both *-ta* and *kuri* can be dropped (and are more naturally dropped) in the second conjunct. We can assume that (i) is a coordination of IPs, dominated by the same *-ta kuri* piece of structure. See section 1.2 for a brief discussion of the basic clausal spine in Paraguayan Guaraní.

- (4) Kalo o-purahéi-ta.  
 Kalo 3SG-sing-TA  
 'Kalo will sing.'

As Tonhauser notes, indexical adverbs cannot be used to construct a future-in-the-past meaning in the presence of *-ta*, as illustrated in (5a,b). Consultants describe these sentences as a contradiction: *kuehe* locates the event in the past, while *-ta* gives rise to a meaning that locates the same event in the future with respect to the speech time. Similarly, in (5c), in the presence of the indexical adverb *ko pyhareve* 'this morning', the sentence can only be interpreted as locating the described event in the future part of the morning relative to the speech time.

- (5) a. \*Kuehe Kalo o.purahéi-ta.  
 Yesterday Kalo 3SG-sing-TA  
 (Intended meaning: 'Yesterday, Kalo was about to sing.')
- b. \*Kuehe, Kalo o-hó-ta mercado-pe.  
 Yesterday, Kalo 3SG-go-TA market-LOC  
 (Intended meaning: 'Yesterday, Kalo was about to go to the market.')
- c. Ko pyhareve, Kalo o-purahéi-ta  
 This morning, Kalo 3SG-sing-TA  
 'Later this morning, Kalo will sing.'  
 (not: 'Earlier this morning, Kalo was about to sing.')

The above examples suggest that *-ta* is interpreted relative to the speech time. In this *-ta* is similar to epistemic modals, which are typically interpreted above tense, directly with respect to the speech time (although there are known exceptions to this). Because of this property of *-ta*, the described event is interpreted as future-oriented with respect to the speech time, which is clearly incompatible with an indexical adverb that locates the described event to a time prior to the speaker's now, as in (5a–b).

Importantly, in the context of narration, the evaluation time of the *-ta*-containing clause can be past-shifted, as illustrated in (6). The example in (6a) was provided spontaneously by our consultant. In these examples, the optional particle *hina*, which generally functions as a progressive marker, might not have a purely aspectual function but rather may (also) function as an assertive marker (Kallfell 2016).

- (6) a. Kuehe, a-hecha María-pe ha ha'e o-viajá-ta hina Los Angeles-pe.  
 Yesterday, 1SG-see María-DOM and 3 SG.PRON 3SG-travel-TA HINA Los Angeles-LOC  
 'Yesterday, I saw María and she was about to travel to Los Angeles.'
- b. Kuehe, a-ha Elsa róga-pe ha nda-ikatú-i a-ñe'ẽ hendive.  
 yesterday 1SG-go Elsa house-LOC and NEG-be.able-NEG 1SG-speak with.her  
 'Yesterday, I went to Elsa's house and I was not able to speak to her.'
- O-sẽ-ta hina; o-japurái eterei  
 3SG-g-TA HINA 3SG-hurry extremely  
 'She was about to go out and was very much in a hurry.'

We suggest that in cases like these, Paraguayan Guaraní makes use of a mechanism that is available in other languages in the more restricted context of the Historical Present. The Evaluation (Eval) time of a sentence (= Speech time in the unmarked

case) can be shifted to the Narrative time, represented by the speaker as the *speech time for the purpose of the narration*, which precedes the actual Speech time. As shown by Schlenker (2004), in such cases of narrative shift, indexical temporal adverbs are still interpreted relative to the actual speech event. On the other hand, the past-shifted Evaluation time allows a tenseless predicate to be interpreted as past relative to the actual Speech time.

We propose that in Paraguayan Guaraní, the dissociation between the actual speech context and the narrative context is not used merely as a special stylistic device, but rather as a general way of resolving temporal interpretation in narrative sequences. More precisely, our working hypothesis is that in Paraguayan Guaraní, even in ordinary speech, the Eval-time is not rigidly set to the actual speech time. In the unmarked case, it is indeed set to the actual speech time, as in English, but it can also be shifted to a narrative time as in (6) above, yielding a past interpretation relative to the speech time.

In the presence of a non-indexical adverb, the Eval-time can also be shifted to a narrative past. For example, the shift occurs with the clausal adverbials in (7), encoded by the temporal conjunctions unstressed *ramo* (or shortened *rõ*) for proximate events and *ramo guare* (or shortened *rõguare*) for distal events. These discourse-framing adverbials restrict the temporal location of the described event relative to the shifted Eval-time.<sup>7</sup>

- (7) a. A-hechá=*ramo* María-pe, o-viaja-*ta* Los Angeles-pe.  
 1SG-saw=*RAMO* María-pe, 3SG-travel-TA Los Angeles-LOC  
 ‘When I saw María recently, she was about to travel to Los Angeles.’
- b. A-jo-topá=*ramo* guare María=*ndive*, o-mendá-*ta* *hína*.  
 1SG-REC-meet=*RAMO* *GUARE* María=*with*, 3SG-marry-TA *HINA*  
 ‘When I met María some time ago, she was about to get married.’

To recapitulate, we have proposed that, while Eval-time is the speech time in the unmarked case in Paraguayan Guaraní, it can be reset to a narrative (past) time in the context of a narrative sequence of events, or in the presence of certain discourse-framing temporal adverbial clauses. As we have seen, in such cases, a past reading is available in the presence of a future-oriented modal element, such as *-ta*.<sup>8</sup> Indexical adverbs, on the other hand, are always interpreted with respect to the actual speech context, and in the absence of tense, another mechanism is required in order to obtain a past-shifted interpretation. One such mechanism is Eval-time shift

<sup>7</sup>Grammars (e.g., Ayala 1996) analyze unstressed *ramo* as a present *if/when* conditional. For the two native speakers we consulted, unstressed *ramo* can also be used as a proximate temporal conjunction. It is possible that (at least in some dialects) unstressed *ramo* (originally a present conditional) has evolved to fill in a gap in the grammar of Guaraní, namely that of a proximate temporal conjunction.

<sup>8</sup>Note that a Q&A context is distinct from a narrative context, that is, a past interpretation in the question cannot license a future-in-the past interpretation of *-ta* in the answer. The temporal interpretation of A below is unambiguously a future with respect to the present speech time.

Q: Re-hecha-pa María (kuehe)? ‘Did you see María (yesterday)?’

A: Héẽ, o-viajá-*ta* (*hina*) Los Angeles-pe. ‘Yes, she is about to travel to Los Angeles.’

to narrative time.<sup>9</sup> As we will see later, the notion of narrative time is also relevant in understanding the temporal interpretation of the indirect evidential *ra'e*.

How is Eval-time represented in the clause? We assume that Eval-time and the Attitude Holder (Att-H), identified as the Speaker in a matrix clause, are represented as a pair of pronouns introduced by a Comp node in the outer layer of the clause (there is also the world coordinate that we will ignore here); see Bianchi (2003), Landau (2015), Giorgi (2010), a.o. We notate the Att-H as  $pro_s$  and its temporal coordinate as  $pro_T$  (=Eval-time). We will refer to this projection as the Attitude Center (or Att-C). (We emphasize that  $pro_T$  is the Eval-time and *not* the topic time introduced by T in tensed languages.)

(8) [ $pro_s$   $pro_T$  C [ ... IP

Looking ahead, the Att-C will be mapped onto an attitude event in the semantics. In matrix clauses, the attitude event is the speech event, and in clausal complements of attitude verbs, for example, *think* and *say*, the attitude event is the thought event or the reported speech event.

The question arises as to where modals and viewpoint aspect markers are located in the Paraguayan Guaraní clausal spine.<sup>10</sup> Modals, and *-ta* in particular, are projected high in the structure, that is, above IP, where IP is an extended predicate. Whether IP is a predicate of events or of times depends on the exact position of Viewpoint Aspect in the clausal spine. The head of IP agrees with the most prominent argument, giving direct–inverse alignment).<sup>11</sup> As for Viewpoint Aspect, in Paraguayan Guaraní it may be located immediately above IP, or alternatively, immediately above vP. We leave this question open here and indicate the two options below. The choice will determine whether the IP is a predicate of events, as in (9a), or a predicate of times, as in (9b). We assume that indexical temporal adverbs (Index Adv) are modifiers of Viewpoint Aspect and that the discourse-framing temporal adverbials (D-Adv) are located in the outer layer of the clausal structure.

(9) a. [D-Adv [ $Att-C$   $pro_s$   $pro_T$  C [Modal [Index-Adv [ViewP [ $IP$  I [ $v_P$  v V...]....]]  
 b. [D-Adv [ $Att-C$   $pro_s$   $pro_T$  C [Modal [ $IP$  I [Index-Adv [ViewP [ $v_P$  v V...]....]]

Since modals and viewpoint aspect markers will not play a role in the discussion of the evidential/temporal connection, we will not discuss them any further, and will omit their functional projection from the clausal representations.

<sup>9</sup>Certain sentence particles, such as *kuri*, appear to permit Eval-time shift. With *kuri*, the future-in-the past interpretation missing in (5) is available, as in (i) (also noted by Tonhauser 2006, 2011b). We leave *kuri* for future work.

(i) (Kuehe), María o-viajá-ta kuri Los Angeles-pe.  
 '(Yesterday), María was about to travel to Los Angeles.'

<sup>10</sup>As in languages with tense, the role of Viewpoint Aspect in Paraguayan Guaraní is to take a predicate of eventualities and return a predicate of times.

<sup>11</sup>On the details of the inflectional properties of Paraguayan Guaraní, see Zubizarreta and Pancheva (2017).

## 2.2 On evidentiality

Evidentials are broadly understood as specifying the source of information for a speaker's utterance. The two most general categories found in evidential systems are direct and indirect evidence: the first involves direct perceptual experience of the described event, or general/authoritative knowledge; the second is either reportative (third party information) or inferential (logical conclusion based on some premises). Languages may make further, finer-grained distinctions within these two broad categories; for example, a common distinction within the inferential category is inference from results (an abductive inference based on the perception of an event that is judged to be causally related to the described event), versus a purely conjectural inference (see Chafe and Nichols 1986, Willett 1988, Aikhenvald 2004, 2018, among others, for a detailed discussion of typological variation in evidential systems).

We propose to encode evidentiality syntactically, by means of a dedicated functional projection located below the Attitude-Center in the left periphery of the clause, and interpretable person features on the head of this projection and its associated nominal argument. We call the projection *Evidence-acquisition event* (EA), for continuity with the literature (e.g., Chung 2007, Lee 2013, Smirnova 2013, Koev 2017). The EA head encodes aspects of the event of acquiring evidence for the information expressed by its sister node – here IP, setting aside other possible intervening categories encoding modality and aspect. IP here corresponds to what is referred to as the *prejacent* in the evidential literature.

The EA projection is, strictly speaking, a semi-functional verbal projection. It has lexical content akin to that found in basic attitude and perception verbs, like *say*, *think*, *see*, and *hear*. Speas (2004: 264) proposes that “we might think of evidential morphemes as syntactically reduced logophoric (propositional attitude) predicates.” EA in a direct evidential has solely perceptual content. In indirect evidentials, EA has the content of an attitude predicate, either thought (inferentials) or speech (reportative evidentials). The content of thought-based EA may be more complex, incorporating the notion of event perception or not. Inferential evidentials that are perceptually based yield an *inference-from-result* (i.e., perception of an event is inferred to be the result of the event described in the clause); those that are not perceptually based are based solely on belief (conjectures). Languages differ in how they morphologically express these categories (see Aikhenvald 2004 for an extensive review). Some examples of perceptually-based evidentials are indirect evidentials in Bulgarian and Turkish (Izvorski 1997, Şener 2011, Smirnova 2013, Koev 2017), the clitic combination *chu-sina* in Cuzco Quechua (Faller 2011), and *an'* in St'át'imcets (Rullmann et al. 2008). The evidential *k'a* in St'át'imcets (Rullmann et al. 2008) and the clitic *chá* in Cuzco Quechua (Faller 2002, 2011) have been claimed to be general indirect evidentials, covering both inference from results and conjectures.

In accordance with this view of the content of EA, we propose that EA introduces an (experiential) *pro* argument, realized in its specifier. This *pro* argument is referentially controlled (possibly via binding) by the closest Attitude Holder (*pro<sub>s</sub>*) above it. We represent this referential relation with underlines. This captures the



fact that the evidence is attributed to the speaker in root clauses (or more generally, to the Attitude-holder immediately above it, as we shall see when we look at evidentials in embedded clause). Our account bears key similarities with Speas (2004), who also posits a speech-center projection and an evidential projection, and instantiates the role introduced by each with a *pro* argument: “speaker” for the speech-centre projection, and “the one who has the evidence regarding the truth of the proposition” for the evidential projection. For Speas, the identity of the two instances of *pro* is achieved through binding; see (10) below. We emphasize that the syntactic structure makes explicit the fact that evidential statements are based on personal experience on the part of the attitude holder in a perceptual event or an attitude event that serves as the evidential justification for the prejacent, represented by the IP in the structure in (10). In that sense, the EA can be thought of as an extension of the Attitude Center.<sup>12</sup>

(10) [<sub>pro<sub>s</sub></sub> pro<sub>r</sub> C [<sub>pro</sub> [EA [...IP ]]]]

We turn next to a discussion of the person-based morphosyntactic features on *pro* and their relation to the semantic content of EA. This, in conjunction with the contents of the EA, characterizes the type of evidentials.

### 2.3 Person-based morphosyntactic features: extension to the evidential system

The person features that characterize DP event participants are determined by the relation that the referents of these DP arguments bear to the speech event: 1P and 2P arguments are participants in the speech event, while 3P arguments are not. Nevins (2007) furthermore distinguishes [+participant] in terms of the feature [+author] (the speaker) and [−author] (the recipient) of the speech event to characterize the distinction between 1P and 2P.

We propose to extend the person features [participant] and [author] to define the role that the experiencer argument has in the EA event. Within the category of indirect evidentials, person features derive the subtype of attitude. In the case of direct evidentials, the *pro* subject of EA is the author of the *perception event*; see (11a). On the other hand, indirect evidentials are characterized as attitude events, namely as a *thought event* in the case of inferentials (whether inferences from result or conjectures) and as a *speech event* in the case of reportatives. In the former case, the *pro* subject of EA is the author of the thought (11b.i) and in the latter, it is the non-author (i.e., recipient) in the speech event (11b.ii). However, in many languages, a single evidential morpheme covers both inferential and reportative meanings. We do not treat this as a case of ambiguity but of underspecification: we propose that the EA encodes a generic attitude (rather than the more specific thought or speech attitude) and its *pro* argument is marked with the more general [+participant] without further specification as [±author], as in (11b.iii).

<sup>12</sup>The syntax proposed by Speas (2004) is more complex, in that it also postulates an Evaluative Phrase (above the Evidential Projection) and an Epistemological Phrase (below the Evidential Projection.)

- (11) a. direct perceptual evidential, EA perception: *pro* [+author]  
 b. indirect evidential: EA attitude  
 i. strictly inferential evidential: *pro* [+author] → EA thought  
 ii. strictly reportative evidential: *pro* [-author] → EA speech  
 iii. indirect evidential (inferential/reportative): *pro* [+participant] → EA attitude

Paraguayan Guaraní lacks dedicated direct evidentials, but has a series of indirect evidentials. One of these is *ra'e*, which instantiates the case in (11b.iii).

### 3. THE BASIC EVIDENTIAL PROPERTIES OF *RA'E*

The stressless morpheme *ra'e*, which forms a prosodic unit with the preceding word, is an evidential marker that augments the propositional content of the utterance with information about the nature of the Speaker's evidence, specifically conveying that the evidence is either a perceptually based abductive inference on the part of the Speaker (S), or a third-party report. *Ra'e* is thus a type of general indirect evidential which, in its inferential use, requires reasoning *from results to causes*, instantiating Willett's (1988) category of *inference from result*.

*Ra'e* is often present when the described event is unexpected by S, giving rise to an element of (slight) surprise, which can be intensified with other morphemes.<sup>13</sup> Ayala (1996) gives the following example: someone goes to visit a friend, and upon seeing somebody else's name on the door, he utters to himself the sentence in (12), which carries a (slight) surprise meaning that is not captured by the English translation. Ayala makes it clear that *ra'e* marks what is new information for the speaker and therefore its usage does not need an interlocutor: the speaker can use it to formulate it as a thought to him/herself.<sup>14</sup>

- (12) O-va            nipo=*ra'e*.  
 3SG-MOVE    PRT=*RA'E*  
 'He moved, I see.'

The meaning of surprise on the part of the speaker, known as *mirativity* (DeLancey 1997), is commonly found with indirect evidentials crosslinguistically (see Peterson 2015). Although the meaning of surprise is quite pervasive with *ra'e*, it is not always present. See Salanova and Carol (2017) and Carol and Avellana (2019) for discussion of this issue with respect to *ra'e*.

Further illustration of the use of *ra'e* is given below (examples are from our own questionnaire). Consider the following contexts. María (=S<sub>1</sub>) enters the kitchen and sees Kalo's hat on the table (Context 1) or sees Kalo sitting there (Context 2). S<sub>1</sub> then says (13) to Luisa (=S<sub>2</sub>), who is in the next room. S<sub>2</sub> can use (14) to report

<sup>13</sup>Some of the morphemes mentioned by Ayala (1996) as often co-occurring with *ra'e* (some of them made up of smaller morphemes) are: *mona*, *nane*, *nipo*, *nune*, *pa*, *piko*, *pipo*, *tamo*. The study of these morphemes is beyond our present goal: we examine *ra'e* in the absence of these other morphemes.

<sup>14</sup>As we shall see, *ra'e* has focalizing properties, but it contrasts with focalizers like *ko* and *ku* in that the latter need an interlocutor (Ayala 1996: 262–4).

S<sub>1</sub>'s observation. In (14) the matrix subject is the Att-H to whom the evidential content is attributed. In effect, in many languages, evidentials shift their meaning contribution to the matrix subject in embedded attitude contexts, rather than remaining anchored to the Speaker.<sup>15</sup> We return to embedded *ra'e* in section 5.

- (13) Kalo o-u=*ra'e*.  
 Kalo 3SG-come=RA'E  
 'Kalo came, I see.'
- (14) María he'i (chéve) Kalo o-u ha.gue=*ra'e*.  
 María 3SG.said (1SG.DAT) Kalo 3SG-come SUB.PST=RA'E  
 'María said (to me) that Kalo had come, as she had found out.'

In both contexts C1 and C2 considered above, there is an inference on the part of S<sub>1</sub> that Kalo came, based on the observation of a related event, namely, the presence of Kalo's hat on the table (a non-trivial inference) or based on the observation that Kalo is in the kitchen (a trivial inference, but an inference nonetheless). Interestingly, there is a constraint on the type of evidence that licenses *ra'e* with punctual events (also independently established by Carol and Avellana 2019), illustrated in (15), from our questionnaire, with the punctual verb (*o*)*joka* 'to break'. We asked our consultants to compare two scenarios: Context 1, in which S enters the kitchen and sees a broken dish (S does not see Kalo but knows that he is the only one that has been around) and Context 2, in which S enters the kitchen and sees Kalo break the dish. S then says (15) to Luisa, who is in the next room. All eight of our consultants report that (15) can be uttered felicitously only in Context 1, where S did not see Kalo break the dish.<sup>16</sup>

- (15) Kalo o-joka=*ra'e* tembiporu.  
 Kalo 3SG-break=RA'E dish  
 'Kalo broke a dish, I see.'

In contrast, it is fine to use *ra'e* in the case of direct observation of an activity or a state. For example, S can utter (16a) when they look out the window and discover that it is raining. Similarly, S can utter (16b) upon seeing Kalo singing. The first has a progressive interpretation (given the presence of progressive *hína*) and the second one a habitual or ability interpretation.

- (16) a. O-ky hína=*ra'e*.  
 3SG-rain PROG=RA'E  
 'It's raining, I see.'
- b. Kalo o-purahéi=*ra'e*.  
 Kalo 3SG-sing=RA'E  
 'Kalo sings, I see.' / 'Kalo can sing, I see.'

We maintain that in such cases *ra'e* still marks indirect evidence. Indirect evidentials are commonly used crosslinguistically when the speaker directly observes the described event, with a mirative inference (see, for example, Peterson 2015). We

<sup>15</sup>See Korotkova (2016) for a recent discussion of cross-linguistic variation in evidential shift.

<sup>16</sup>We obtained similar results with the punctual verb *pyvoi* ('to kick').

think that in cases like (16b), *ra'e* marks inference from an observed result (Kalo singing) to a general state of affairs: the prejacent proposition here is not about a particular event, but about a characterizing property of Kalo (he habitually sings, he has the ability to sing). Crucially, the observed event needs to be presented as atelic. This is because characterizing sentences rely on atelic predicates, or on explicit imperfective or habitual aspect, crosslinguistically. Example (16a) is a harder case, although here too we see the semantic contribution of *ra'e* as marking abductive inference: the observed event is inferred to be the result of a temporally bigger episodic event of the same type (it raining now is part of a larger ongoing event of raining). This inference too is only possible with atelic events since only such events license a subset-to-superset relation, in contrast to telic events. The requirement for atelicity is the reason we only see *ra'e* used with directly observed events in cases like (16), with atelic *sing* and *rain*, but not (15), with telic *break a dish*. Because the semantic inference in (16a) and (16b) is subtle, the mirative reading is particularly salient (see Peterson 2015 for a pragmatic account of mirativity). For a view of *ra'e* close to the one presented above, see Carol and Avellana (2019), and for a different view, see Salanova and Carol (2017).

We conclude that in all of the cases examined above, S acquires information that *p* via indirect perceptual evidence. However, *ra'e* is also compatible with situations in which S obtains information from a third-party source, as was illustrated in (12) for embedded *ra'e*. Furthermore, as noticed by Velázquez-Castillo (2017), *ra'e* is compatible with the reportative particle *ndaje* (often shortened as *-je*); for example, *Kalo o. purahéi ndaje ra'e* 'It is said that Kalo sings, it turns out'.<sup>17</sup> What we retain as grammatically significant is the fact that in the case of *ra'e*, the Att-H can be either the *inferential author* of the evidence-acquiring (EA) event (S infers that *p* based on an observable event) or the Att-H can be the *recipient* in the EA event (S acquires the information via a third party rather than via inference of an observable event). As mentioned in the previous section, we propose to unify these two cases by identifying the Att-H as a *participant of an attitude EA event*. The featural specification of *ra'e* is as below (note again that the [+participant] feature defines the role of the attitude holder in the EA event, which is not to be confused with the role in the speech event or matrix attitude event):

- (17) *Ra'e* requires that EA be specified as [+participant] (to be modified)

We note that stressless *ra'e* has mobility and it forms a prosodic word with the preceding lexical item. While it typically appears after the verb phrase (with wide vP focus or narrow focus on the verb), it can also appear after a focused argument. Thus, an alternative to (13) is (18), where stressless *ra'e* follows the focused subject, forming a prosodic word with it. Because of its mobility and prosodic properties, we refer to *ra'e* as a clitic-like particle.

- (18) Kalo=*ra'e* o-u.  
 Kalo=RA'E 3SG-come  
 'It was Kalo who came.'

<sup>17</sup>*Ndaje* has no temporal import. Velázquez Castillo (2017) analyzes it as a supra-propositional evidential, but see Tonhauser (2014) for a different view.

Based on the above, we arrived at the syntactic characterization of *ra'e* as given in (19).

- (19) The particle *ra'e* originates within the IP, either adjoined to the vP or the focused constituent, and it cliticizes to the EA head at LF.

The above is captured by the LF representation given in (20), where  $XP_F$  represents the focused constituent. The clitic *ra'e* moves from its surface position within IP, where it is adjoined to the vP containing the focused constituent or to the focused constituent itself, and adjoins to the EA head at LF. The clitic *ra'e* requires that the EA to which it is attached carry the interpretable feature [+participant]; see (17). This must match the feature composition of the *pro* in [Spec, EA]. This means that the *pro* subject of EA (to which *ra'e* is adjoined) is specified with the [+participant] feature, as shown in (20).

- (20) [ $pro_S$   $pro_T$  [C [ $pro_{+PART}$ ] [*ra'e* [EA $_{+PART}$ ] [IP  $XP_F$  (*ra'e*)] (to be modified)

What is the interpretation of the proposed feature on EA? As mentioned earlier, [+participant] encodes the role that the Att-H bears with respect to EA: the Att-H *pro* can be the author of an inferential reasoning based on perceptual evidence, or the recipient of a report, either of which leads the speaker (coreferential with *pro*) to introduce *p* to the discourse. The [+participant] feature captures the indirect evidential nature of *ra'e*, to the extent that only in the case of an indirect evidential can *pro* be interpreted as the author of an inference or the recipient of a report. We elaborate further on the meaning of *ra'e* in section 9.

#### 4. THE EVIDENTIAL-TEMPORAL CONNECTION

In this section, we turn to the temporal–evidential connection, first providing a brief background and then introducing the role of deictic features [proximate] and [distal].

##### 4.1 A brief background

*Ra'e* has temporal import. Velázquez-Castillo (2009: 2) has suggested that the temporal properties of such evidential markers follow from a more basic meaning of deixis: “temporal values are natural ramifications of the proximal and distal relations that hold between the information source and the speaker”. Although she does not provide a precise analysis of the connection between evidentiality and temporal deixis, we adopt here the general spirit of the above quote.

We interpret Velázquez-Castillo’s claim as having three components: evidential interpretation in Paraguayan Guaraní relies on the representation of an evidence-acquisition event (the information source); evidential morphemes in Paraguayan Guaraní encode a deictic relation between the speech event and either the EA event (*ra'e*) or the described event (*raka'e*); and finally, a temporal interpretation is inferred from this deictic relation. All three components have partial analogues in the literature on evidentiality, which we briefly discuss below. We do not intend to give a comprehensive review; rather we aim, first, to highlight the viability of

the deixis approach, a version of which we pursue; and second, to illustrate a type of analysis of the link between evidentiality and temporality, which we do not in fact follow, at least not for Paraguayan Guaraní. Specifically, whereas prior studies have grammatically encoded temporal (and, on occasion, basic evidential) properties and then derived full evidential meanings as an inference, we suggest that the evidential-temporal link in Paraguayan Guaraní goes in the other direction, in line with Velázquez Castillo's general view: evidentiality is grammatically encoded and temporal interpretation is derived from the interaction of the person and deictic features of these evidentials.

A number of formal semantic accounts have relied on the representation of an evidence acquisition time or event in the lexical semantics of evidential markers (see Chung 2007, Lee 2013, Smirnova 2013, Koev 2017). In that literature, the (spatio-)temporal relations of the EA event to the speech event and the described event are typically used to derive the type of evidentiality (direct or indirect) without specifically encoding it in the lexical meaning of evidential morphemes. As mentioned in section 3, the EA event has also been represented in structural terms in formal syntactic accounts (Speas 2004). Our account builds on these works; in particular, we acknowledge the grammatical relevance of an evidence-acquisition event (see the structure in (10) above).

The second component of Velázquez-Castillo (2009)'s suggestion – the relevance of deixis – is a fairly common idea in the more functionally and typologically oriented literature (e.g., de Haan 2005), building on the observation that evidential markers sometimes develop from spatial deictic expressions (Aikhenvald 2004). A link between spatial deixis and evidentiality has been proposed in the formal semantic literature as well. Faller (2004) and Chung (2007) argue that certain evidential markers in Quechua (*-sqa*) and Korean (*-te*, *-ney*), respectively, are spatio-temporal deictics that encode a relation between the speaker's perceptual field at the topic time and the described event (*-sqa*) or the EA event (*-te*, *-ney*). The contribution of the temporal deictics as direct or indirect evidentials follows as an inference. A somewhat different spatio-temporal relationship is entertained by Koev (2017) for the Bulgarian evidential marker, which is argued to grammatically encode a disjoint spatio-temporal relation between the EA event and the described event. Apart from their reliance on the grammatical representation of the spatio-temporal properties of an evidence-acquisition event, the accounts discussed above share another aspect: they all deal with evidential markers that have temporal import, and they all encode the temporal meaning fully and derive (aspects of) the evidential meaning on the basis of the temporal semantics. To achieve this, however, some of the accounts need to posit special spatio-temporal tenses alongside regular tenses (Chung 2007, Lee 2013, Smirnova 2013, Koev 2017).<sup>18</sup> Since we maintain that Paraguayan Guaraní has no tense, evidential meanings cannot be derived on

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<sup>18</sup>Arregui et al. (2017) argue against the postulation of evidential-specific tense paradigms and argue that tenses retain their regular role in evidential contexts. See also Speas (2010) for a different view on the evidential-temporal connection.

the basis of tense. Rather, we suggest that evidential meanings themselves contribute to temporal interpretation, in a way we make precise below.

#### 4.2. The role of deictic features

In the person domain, beyond the use of [participant] and [author] features, numerous languages mark distinctions between third persons in terms of a [proximate] feature; for example, the proximate/obviative marking found in the Algonquian languages (DeLancey 1981, Bliss 2005, 2013, Ritter and Wiltschko 2014, Wiltschko 2014, among others). We interpret the [ $\pm$ proximate] distinction, when incorporated into the system of person features, as encoding a general notion of cognitive proximity/distance (i.e., a person-based perspective), allowing for potential cross-linguistic variation in its specific manifestation. Thus, we arrive at the distinctive features [ $\pm$ participant] and [ $\pm$ proximate]: 1P and 2P are [+participant], while 3P is [-participant], and either [+proximate] or [-proximate].<sup>19</sup>

We now propose to add the feature [ $\pm$ distal] to the person system. This feature allows us to characterize the distinction between 1P and 2P not only with respect to their role as participants in the speech event, but also along the spatial dimension. More precisely, the speaker is defined as [+proximate, -distal] and the hearer as [+proximate, +distal] with respect to the source of the speech event. In other words, the speaker defines the point of origin and the hearer the point of reception of the speech act.<sup>20</sup> Thus defined, these features are particularly useful to characterize a demonstrative system that defines the spatial relation between the referent of the DP and the speech participants, as in Spanish: *este* ([+proximate]), *ese* ([-proximate], [-distal]), *aquel* ([-proximate, +distal]).

In Paraguayan Guaraní, the [ $\pm$ proximate] feature, and its related [ $\pm$ distal] feature, are useful in the characterization of the four-way demonstrative system described by the grammarian Ayala (1996), shown in (21), where R stands for the referent of the DP. Our proposed feature system can characterize this four-way distinction, as the features in (21) show. The feature [ $\pm$ proximate] is interpreted relative to both participants of the speech event: a [+proximate] DP is one that is close to both speaker and hearer, and a [-proximate] DP is one that is not close to either speaker or hearer. On the other hand, the feature [ $\pm$ distal] is interpreted relative to the source of speech (i.e., the speaker): a [+proximate, -distal] DP is closer to the speaker than the hearer, and a [+proximate, +distal] DP is closer to the hearer than the speaker. While the spatial features do not appear to be fully active in the characterization of event participants in Paraguayan Guaraní, they play a central role in the characterization of demonstratives, including the feature [ $\pm$ distal], which

<sup>19</sup>Gumbiano, a language of southwestern Columbia described by Norcliffe (2018), has a subject pronominal system that makes a distinction between speaker and non-speaker. This can be captured in terms of the person features [+author] (1P) and [-author] (non-1P). The language further distinguishes between 2P and 3P subject pronouns via spatial deixis features, with the former characterized as [-author, +proximate] and the latter as [-author, -proximate].

<sup>20</sup>Ackema and Neeleman (2013), starting from rather different premises, also arrive at a characterization of 2P as [+proximate, +distal].



distinguishes (b) from (c) below.<sup>21</sup> The spatial relations described below apply with respect to an object within the visual field of the speech participants.<sup>22</sup> (The demonstrative pronouns in parentheses below are nominals formed by adding the relativizer *-va* to the demonstrative form.)

- (21) a. *pe* (péva): R close to both speaker and addressee [+proximate]  
 b. *ko* (kóva): R closer to *speaker* than to addressee. [+proximate, -distal]  
 c. *upe* (upéva): R closer to *addressee* than to speaker. [+proximate, +distal]  
 d. *amo* (amóva): R far to speaker and addressee. [-proximate]

Paraguayan Guaraní has a determiner '*ako*', apparently falling out of use, which appears on a (overt or covert) time-denoting nominal phrase restricted by the temporal clause headed by *ramoguaré*, which can be characterized as [-proximate, +distal]. According to Ayala (1996), this temporal deictic phrase evokes a distal event in the addressee's memory, for example those in (22) and (23) from Ayala. Demonstrative *ako* will become particularly relevant when we discuss the temporal properties of *raka'e*.

- (22) *Ako* (ára) ja-ka'u ramoguaré  
 AKO (time) 1EXCL.drink CONJ.DISTAL  
 'that (time) that we were drunk'
- (23) Ne mandu'á-pa *ako* (pyhareve) ja-ha ramoguaré Ka'akupé-pe?  
 2SG remember-Q AKO (morning) 1INCL-go CONJ.DISTAL Ka'akupé-LOC  
 'Do you remember that morning when we went to Ka'akupé?'

Given what we have said earlier about the relations between the speech event and its participants (namely, that the participants are proximate to the speech event, with the author as [-distal] to the source of speech and the addressee as [+distal] to it), it is natural that such relations constrain the possible combinations of person and deixis. First, a [+participant] feature can combine with a [+proximate] but not with a [-proximate] feature. Second, a [-author] feature can combine with a [+distal], but not with a [-distal] feature. Finally, a [+author] feature can combine with a [-distal], but not with a [+distal] feature. We will refer to these combinatorial

<sup>21</sup>The demonstrative system in some variants of Paraguayan Guaraní (in contact with Spanish) appears to have undergone a process of attrition, with the 4-way distinction described by Ayala becoming a 3-way distinction (as in Spanish). In such dialects, *pe* and *upe* seem to have collapsed into one morpheme (*u*)*pe* with respect to spatial distance: *ko* 'este', (*u*)*pe* 'ese', *amo* 'aque'l', with the caveat that *upe* refers to individuals outside the visual field.

- (i) Upe ao nde re-jogua kuehe (ii) Pe ao apyka=ari, nde re-joguá-pa?  
 that dress you 2sg-buy yesterday that dress chair=on you 2sg-buy-Q  
 'That dress that you bought yesterday' 'That dress on the chair, did you buy it?'

<sup>22</sup>Paraguayan Guaraní has another demonstrative (*ku*) to define the relation between the participants of the speech event and an object visually absent but present in other ways (e.g., audibly present as in *ku jagua*, to refer to a barking dog next door, or present in memory for example, *ku óga re.guasé.va* 'that house that I want to buy' (Ayala 1996), evoking a referent in the memory of the addressee. It is possible that the reinterpretation of *upe* in the variant of Paraguayan Guaraní described in footnote 21 was influenced by the association of '*u*' in *upe* with the demonstrative *ku*.



constraints as the *Homorganic Condition* (HC) on features. The combination of features in (24a, b) are homorganic, but those in (24c) are not.

- (24) a. [+participant, +proximate]  
 b. [-author, +distal], [+author, -distal]  
 c. \*[+participant, -proximate], \*[+author, +distal], \*[-author, -distal]

While the HC is based on the spatial relations that hold in the demonstrative system, we propose to generalize it to apply to temporal relations between events. This is indeed the most parsimonious assumption. We will see that the HC on feature combinations correctly captures the evidential–temporal connection in the case of the two evidentials *ra'e* and *raka'e* in Paraguayan Guaraní.

## 5. THE TEMPORAL PROPERTIES OF *RA'E*

As discussed by Salanova and Carol (2017), Carol and Avellana (2019), and Velázquez-Castillo (2009), and corroborated by our own fieldwork, *ra'e* does not directly contribute to the temporality of the described event. The use of *ra'e* is thus compatible with a described event that occurred in a distal past (25a) or one that has not yet occurred, as in (25b).<sup>23</sup>

- (25) a. O-va yma=*ra'e*.  
 3SG-move long.time.ago=*RA'E*  
 'He moved a long time ago, I see/it turns out.'  
 b. O-vá-ta=*ra'e*.  
 3SG-move-TA=*RA'E*  
 'He is going to move, I see/it turns out.'

What then is the temporal import of *ra'e*? In the examples discussed until now, with *ra'e* in the root clause, the evidence-acquiring event is anchored at or close to speech time. We may assume that this is the unmarked case. Yet, as noted by Salanova and Carol (2017) and Carol and Avellana (*in press*), the EA event can be dissociated from speech time. In particular, it can be shifted to a past time by temporal adverbials that we identified in section 2 as discourse-framing adverbs, and also in narrative contexts. The examples in (26) and (27), from our own questionnaire, illustrate these observations. In (26), the evaluation time for *ra'e* is determined by the temporal adverbial introduced by *ramoguare* (*a-je-juhu ramoguare yma* 'when I met María long time ago'), which we assume is adjoined to the CP that contains *ra'e*. In (27), the EA time introduced by *ra'e* in the second sentence of the narrative is determined by the preceding sentence, which is temporally anchored by the temporal-framing adverbial introduced by the conjunction *-vo*. This conjunction indicates temporal simultaneity with the clause to which it is attached (*che a-guahẽ-vo Kalo rogá-pe* 'at the time when I arrived at Kalo's house'). As seen in the discussion of *-ta* in section 2.1, these temporal discourse-framing adverbials, as well as narrative contexts, can shift the Eval-time from speaker's time to a narrative time that precedes speaker's time.

<sup>23</sup>Recall that *-ta* is a prospective/modal marker; see section 2.

In this case, the EA is understood as located close to or at narrative time. In the case of (26), S found out that María had married when S met her, which was a long time ago relative to the actual speech time. In the case of (27), S realized that Kalo had moved at the time he went to Kalo's house, namely three months prior to speech time. This data further confirms that in Paraguayan Guaraní, the temporal coordinate of the speech event can be dissociated from speaker's *now*, and shifted to the narrative past.

- (26) A-je-juhu ramoguare yma María-ndive, o-menda=*ra'e*  
 ISG-REFL-found CONJ.DISTAL long.time.ago María-WITH, 3SG-marry=*ra'e*  
 'When I met María a long time ago, it turned out that she had married.'
- (27) O-japo mbohapy jasy, che a-guahẽ-vo Kalo rogá-pe, a-hecha ambue tapicha réra okẽ rehe.  
 'Three months ago, when I arrived at Kalo's house, I saw someone else's name on the door.'  
 Kalo o-va=*ra'e*.  
 Kalo 3SG-move=*ra'e*  
 'Kalo had moved, I realized (at that point in time).'

We turn next to the temporal interpretation of *ra'e* in embedded clauses, like the one in (14). As mentioned earlier, in such cases, we see a shift in the orientation of *ra'e*: it is not speaker-oriented, but rather matrix-subject-oriented. Furthermore, we observe that a shift in the referential value of the Att-H brings about a concomitant shift in the temporal value of its temporal coordinate (or Eval-time). This is illustrated by the example below from our questionnaire. In this example, Kalo (the matrix subject) acquired evidence that María had married at a time close to the time that Kalo relayed the information to the speaker. Such data suggests to us that the complement of a verb of saying is a CP with a structure like (20), that is, with a fully specified left periphery, including an Att-C and an EA projection.

- (28) Kuehe / Pe semana pasada-pe, Kalo o-mombe'u chéve  
 Yesterday / DEM week past-LOC, Kalo 3SG-tell to me  
 María o-menda ha.gue=*ra'e*.  
 María 3SG-marry SUB.PST=*ra'e*.  
 'Yesterday / Last week, Kalo told me that María had married'  
 (Kalo's finding-out time is close to the time that he relayed the information to the speaker: yesterday or last week)'

The generalization that emerges regarding the temporal interpretation of *ra'e* is as follows:

- (29) a. *Ra'e* in root CP clauses: the subject of EA is bound to the speaker, and the temporal interpretation of EA associated with *ra'e* is close to or at speaker's time (the unmarked case) or close to or at narrative time (in shifted cases).  
 b. *Ra'e* in embedded complement CP clauses: the subject of EA is bound to the external argument of the matrix predicate, and the temporal location of the EA event is at or close to the matrix event time.

It is clear from the above data that *ra'e* has a temporal effect on the EA event. It is also clear that whatever the Eval-time (speaker's now or narrative time for matrix *ra'e*, or matrix event time for embedded *ra'e*), the relevant temporal notion is *at or close to*

*Eval time*; in other words, the EA event is *temporally proximate* to the Eval Time. We further note that the temporal proximity can only be in the past or at the Eval Time, not in the future. This restriction has a pragmatic source in that the EA event, whether reportative or inferential, cannot be located after the speech time.

Since we want to maintain the strong thesis that Paraguayan Guaraní does not have tense, we propose to model this temporal proximity on the basis of deixis, specifically through the feature [+proximate] encoded in the meaning of *ra'e*. We already know from the study of person-based alignment that [ $\pm$ proximate] can play a non-spatial role. Similarly, we propose here that these deictic features can be interpreted temporally. These grammatical features are always anchored to the speech event (more generally, the local attitude event), but they may be deployed along different dimensions: cognitive or physical space, and time.

- (30) If an EA event is marked as [+proximate], then it is *temporally proximate* to the Attitude event.

We propose to update our analysis of *ra'e* accordingly. To the feature [+participant] of *ra'e* we add the feature [+proximate]. Note that this feature is congruent with the person feature [+participant], as required by the Homorganic Condition in (24). We update the morphosyntactic analysis of EA in combination with *ra'e* in (31a) (compare with (17)), and its associated syntactic structure in (31b) (compare with (20)). Note that the *pro* subject of EA is not itself marked [+proximate] because in Paraguayan Guaraní personal pronominal arguments, unlike demonstratives, do not encode deictic features.

- (31) a. *Ra'e* requires that EA be specified as [+participant, +proximate]  
 b. [<sub>pro<sub>s</sub></sub> pro<sub>t</sub>] [C [<sub>pro</sub>[+PART] [*ra'e* [EA[+PART, +PROX] [<sub>IP</sub> XP<sub>F</sub> (ra'e)]...]]

In the next section, we provide data based on preliminary research on the nature of the embedding verb in cases where *ra'e* appears in the complement clause, and show how the facts strongly support a syntactic representation of the left periphery of CP complement clauses along the lines of (31).<sup>24</sup>

## 6. THE NATURE OF THE EMBEDDING VERB AND ITS THEORETICAL SIGNIFICANCE

As we have seen above, *ra'e* can appear within the clausal complement of verbs of saying, such as *-e* 'say', *-mombé'u* 'tell', *-porandu* 'ask'.<sup>25</sup> Although *ra'e* is part of

<sup>24</sup>We are currently conducting more research on the embeddability properties of *ra'e*.

<sup>25</sup>Tonhauer consistently refers to subordinator *ha*, as in (ii), as a nominalizer, though complements with *ha* have clausal, not nominal, internal structure (e.g., the subject is not genitive). Tonhauer's main reason to call *ha* a nominalizer is that the terminative aspect *-kue/gue* can suffix to it, giving a past reading relative to the past matrix event, as in (32). This same terminative aspect appears on nominals, with the meaning 'former' as in *Kalo róga kue* 'Kalo's former house'. There may have been an earlier stage of the language where *ha* was a nominalizer in complementation contexts, but in current Paraguayan Guaraní, there is no evidence for this. Rather, the fact that evidentials can appear in *ha*-complements suggests that they are clausal. See Korotkova (2016), who shows that in Turkish evidentials are barred in

the embedded clause, its prejacent is not a textual transmission of what was said. This is illustrated in (32). After *María* went to *Kalo*'s house, she said (literally) (32a) to *S*. The content of what *María* said can then be reported by *S* the next day as in (32b), with the indexical *kuehe pyhareve* 'yesterday morning' and possibly with the epithet *pe tavyrai* 'that idiot' in place of the name *Kalo*. Both of these are speaker-oriented: the embedded temporal adverb is interpreted with respect to the speaker's now, and the epithet expresses the speaker's thoughts about *Kalo*.

(32) *María* says (a) to *S* and then *S* reports (b):

a. *Kalo* o-va=*ra'e* ko *pyhareve*.

*Kalo* 3SG-move=*RA'E* DEM morning

'*Kalo* moved this morning, it turns out.'

b. *María* o-mombe'u *chéve Kalo / pe tavyrai* o-va *ha.gue=ra'e*

*María* 3SG-tell me.IO *Kalo / that idiot* 3SG-move SUB.ASP=*RA'E*

*kuehe pyhareve*.

yesterday morning

'*María* told me that *Kalo / that idiot* had moved yesterday morning, as she found out.'

The propositional attitude verb (*oi*)*mo'ã* 'to believe' allows a complement either with or without a subordinator *ha*, and there is an interesting contrast between the two. With this verb, it is not possible to embed *ra'e* in the presence of the subordinator *ha*, as shown by the ungrammaticality of the examples in (33a).<sup>26</sup> On the other hand, in the absence of *ha*, the presence of embedded *ra'e* is felicitous, as shown in (34). Crucially, in these examples, the evidential content is not attributed to the matrix subject but to the speaker, as in root clauses.<sup>27</sup> In that case, *ra'e* has scope over the entire proposition (*S* infers that *María* believes that *Kalo* moved).

nominalized clauses but possible in embedded CPs. Similarly, Faller (2002) attributes the impossibility of embedded evidentials in Cuzco Quechua to the fact that embedded clauses are nominalized. In Paraguayan Guaraní, *ra'e* also cannot appear within a nominalized phrase, as shown by the contrast between the nominal complement in (iii), with the nominalizer *je*, and the sentential complement in (iv), with *ha*. We therefore consider *ha* a predicate subordinator (sister to IP), selected by a subordinate *C*.

- (i) A-mbyasy Pedro je-ho / i-je-ho. (ii) A-mbyasy Pedro o-ho ha.  
 1SG-regret Pedro JE-LEAVE / 3SG.POSS-JE-LEAVE 1SG-regret Pedro 3SG-go HA  
 'I regret Pedro's /his departure.' I regret that Pedro left.'

- (iii) A.mbyasy Pedro (\**ra'e*) je-ho / i-je-ho (\**ra'e*) (iv) A.mbyasy Pedro (*ra'e*) o-ho ha (*ra'e*)

<sup>26</sup>Our current primary consultant provided the following spontaneous comment regarding (33a): If there is a pause (or intonational hiatus) before *ra'e*, the sentence becomes felicitous, as illustrated in (i) below, but the evidentiality/surprise is attributed to the speaker. It appears that in this case *ra'e* is part of the matrix (and not the embedded) clause, as when *ra'e* appears after the matrix verb, illustrated in (ii). Therefore, some care is required to test *ra'e* when it appears at the end of the sentence.

- (i) *María* oi-mo'ã *Kalo* o-va ha #=*ra'e*. (ii) *María* oi-mo'ã=*ra'e* *Kalo* -va.  
 '*María* believes that *Kalo* moved, it turns out/I see/I realize.'

<sup>27</sup>See also Giorgi (2010) for relevant work on Italian epistemic verbs vs. verbs of saying.

- (33) a. \*María oi-mo'ã Kalo o-va ha=*ra'e*.  
 María 3SG-believe Kalo 3SG-move SUB=RA'E  
 b. \*María oi-mo'ã Kalo=*ra'e* o-va ha  
 María 3SG-believe Kalo=RA'E 3SG-move SUB
- (34) a. María oi-mo'ã Kalo o-va=*ra'e*.  
 'María believes Kalo has moved, it turns out / I realize'.  
 b. María oi-mo'ã Kalo *ra'e* o-va.  
 'It is Kalo that María believes has moved, it turns out / I realize.'

It appears that the ungrammaticality of the sentences in (33) is semantic: the degree of certainty regarding the prejacent on the part of the attitude holder expressed by (*oi*) *mo'a* is too weak to sustain an inference on the part of the matrix subject. This view finds some support in the contrast between verb (*oi*)*mo'a* and the verb (*o*).*rovia*; see (35) below. The former is a thought close to a suspicion, while in the latter, there is a higher degree of certainty on the part of the Att-H.<sup>28</sup> In this case, *ra'e* is compatible with *ha* and is matrix-subject oriented.

- (35) María o-rovia Kalo o-va ha=*ra'e*.  
 María 3SG-believes Kalo 3SG-move SUB=RA'E  
 'María believes that Kalo moved.'

The emerging generalization is given in (36):

- (36) There is a correlation between the presence/absence of subordinator *ha* and the orientation of *ra'e* in the embedded clause.  
 a. Embedded *ra'e* is speaker-oriented in the absence of subordinator *ha*  
 b. Embedded *ra'e* is matrix-subject oriented in the presence of subordinator *ha*.

The above generalization suggests that in the presence of subordinator *ha*, there is a CP layer in the embedded complement, with an Att-C and EA projection represented in its left periphery (i.e., the subordinator *ha* is selected by C). In such cases, embedded evidential *ra'e* is matrix-subject oriented and a semantic incongruence appears to arise, namely between the evidentiality and the epistemic state of the Att-H (i.e., the matrix subject) with respect to the embedded proposition. Perhaps the attitude verb is too weak (in terms of degree of certainty) to support *ra'e*; speakers' intuitions appear to confirm this conjecture. On the other hand, in the absence of an overt subordinator *ha*, the embedded C layer is analyzed as absent.<sup>29</sup> In the absence of an embedded C layer where Att-C and EA are located, embedded *ra'e* will cliticize onto the

<sup>28</sup>In the same vein, to express belief in God, (*o*).*rovia* must be used. The root *-rovia* is the short form of the extended root *-gue.rovia*.

<sup>29</sup>In a tense language like English, with a [ $\pm$ finite] distinction in its complementation system, the counterpart would be an ECM structure. Note furthermore that absence of *ha* does not necessarily entail absence of C. Indeed, extrapolating from English *that*-deletion, the possibility of *ha*-drop remains open, and in fact exists in Paraguayan Guaraní with other verbs, such as verbs of perception. We leave this issue for future work, where we examine the complementation system in more detail.

closest (i.e., the matrix) EA, giving rise to a speaker-oriented evidential, exactly as in root clauses. The above correlation thus provides strong support for an articulated left periphery in the embedded CP, along the lines proposed in (20).<sup>30</sup>

Note that *ra'e* can appear in questions and in conditional clauses, with interesting effects on meaning,<sup>31</sup> but a full discussion and analysis of these facts is outside the scope of this article.

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<sup>30</sup>We have discovered a contrast that is in line with the conclusion of this section. The verb (*oi*)*kuaa* 'to know' is factive; that is, in (i), the speaker presupposes the truth of the embedded proposition. However, when *ra'e* appears in the complement of (*oi*)*kuaa*, as in (ii), the complement is no longer factive.

- (i) María oi-kuaa Kalo o-va ha, %ha katu María.ojavý; o-pyta jey.  
'María knows that Kalo moved; %but she is wrong; he stayed again.'
- (ii) María oi-kuaa Kalo o-va ha=*ra'e*; ha katu María o-javy; o-pyta jey.  
'María thinks that Kalo moved (based on the evidence she has); but she is wrong; he stayed again.'

This contrast is reminiscent of the one discussed by Özyildizi (2016) for Turkish, where the presence of the complementizer *diye* makes a complement clause non-factive when embedded under the otherwise factive verb *know*. As Özyildizi argues, such data suggests that factivity is a property of the CP layer of the complement, not a property of the embedding verb (see Kratzer 2013). We return to this paradigm in future work.

<sup>31</sup>*Ra'e* is speaker-oriented with respect to the presupposition of *wh*-questions. Thus, the meaning of the question in (i) (from our questionnaire) can be paraphrased as 'someone came, it appears, and who is this?'

- (i) Kalo goes out of the house and sees foot-prints in his front yard. He then asks:  
Máva-pa o-u=*ra'e*?  
Who-Q 3SG-come=*RA'E*

*Ra'e* can appear in questions embedded under attitude verbs, as in (ii). The evidential preajacent *p* is the presupposition of the embedded question (*someone broke a dish*), and the inference of *p* is attributed to the local attitude holder, *María*.

- (ii) María o-porandu chéve máva-pa=*ra'e* o-joka tembiporu.  
María 3SG-ask 1SG.DAT who-INT=*RA'E* 3SG-break dish  
'María asked me who is it that broke the dish.'

*Ra'e* can also appear in yes/no questions. The example in (iv) would be appropriate when the speaker has some perceptual evidence that it has rained and it is asking for confirmation.

- (iii) O-ký-pa?  
3SG-rain-Q
- (iv) O-ký-pa=*ra'e*?  
3SG-rain-Q=*RA'E*

It is often suggested that in questions, evidentials obligatorily shift from speaker-oriented to addressee-oriented (Murray 2010, Lim 2011). Yet sometimes the evidence for this claim comes only from reportative evidentials (e.g., Murray 2010). Recent work suggests that evidentials may remain speaker-oriented in biased questions (Korotkova 2016) and that evidential shift in questions may in fact be subject to cross-linguistic variation (San Roque et al. 2017, Diti 2017). The case of Paraguayan Guaraní indeed supports that claim.

## 7. SUMMARY OF PROPOSED ANALYSIS OF *RA'E*

Our analysis of *ra'e* is based on a syntactic representation of evidentiality in the C layer of the clause, along the lines of Speas (2004). Specifically, there is an evidence-acquisition (EA) event, located immediately below the Attitude Center (Att-C). Att-C consists of a pair of pronouns, an Attitude holder *pro<sub>s</sub>*, and its temporal coordinate *pro<sub>T</sub>*, which are interpreted as coordinates of the speech event.

The particle *ra'e* attaches in the overt syntax to the focused constituent (i.e., the new information in the preadjacent IP) and is related to the closest EA projection above it via a covert LF adjunction rule. *Ra'e* requires that the EA to which it is adjoined be specified as [+participant, +proximate]; a set of features congruent with the Homorganic Condition stated in (24). This feature specification gives rise to an interpretation where (i) the subject of EA is interpreted as [+participant] of the EA event (author of inference or recipient of speech) (ii) the EA event is temporally proximate to the Attitude-event immediately above it.

Importantly, the proposed analysis allows us to model the link between the interpretation of the subject of EA and the temporal interpretation of the EA, thus accounting for the contrast between root and embedded *ra'e*. This analysis crucially relies on the syntactic representation of the Att-C and related EA event at the left edge of full CP clauses. In the absence of a CP layer in a clausal complement, embedded *ra'e* is correctly predicted to behave just like root *ra'e*, having a speaker-oriented rather than a matrix-subject-oriented interpretation.

## 8. THE CASE OF *RAKA'E*

In this section, we turn to the second evidential marker, *raka'e*, first describing its grammatical properties and then proposing a morphosyntactic analysis.

### 8.1 The grammatical properties of *raka'e*

The evidential particle *raka'e* differs from *ra'e* in that it constrains the temporal interpretation of the described event: it is located in a remote past. On the other hand, unlike *ra'e*, *raka'e* does not constrain the temporality of the evidence-acquisition event (EA). Furthermore, the source of evidence is based on third-party knowledge; in other words, *raka'e* is an unambiguously reportative evidential. We illustrate these properties below with examples from our questionnaire.

The sentence in (38) is appropriate if the described event (my grandfather's death) is located in a distal past, but not if it is a recent event. Furthermore, the source of knowledge must be reportative.<sup>32</sup> Our consultants accepted (38) as a continuation of C2 in (37), where María heard from her mother, in a distal past, that her grandfather had been killed, but not as a continuation of C1, where María was a

<sup>32</sup>The use of *raka'e* in cases of "folklore knowledge", with no specific evidential source, is also common, as in (i) where the Mcal. López was the general/dictator who died in the "big war" (1865–70).

witness in a distal past to her grandfather's killing.<sup>33</sup> (A context where María has recently heard about her grandfather's distal death would also be appropriate.)

- (37) C1: María i-mitã-me, o-hecha va'ekue i-jaguelo-pe o-je-juka rōguare. María tuicha rire, i-mandu'a i-jaguelo rehe ha o-mombe'u i-ñirũ Luisa-pe:

'When María was a child, a long time ago, she saw her grandfather get killed. After, when María was older, as she was remembering her grandfather, she said to her friend Luisa:'

C2: María-pe i-mitã-me, i-sy o-mombe'u va'ekue ichupe i-jaguelo o-je-juka hague. María tuicha rire, i-mandu'a i-jaguelo rehe ha o-mombe'u i-ñirũ Luisa-pe:

'When María was a child, a long time ago, her mother told her that her grandfather was killed. After, when María was older, as she was remembering her grandfather, she said to her friend Luisa:'

- (38) Che aguelo o-je-juka=*raka'e*.  
 1SG.POSS grandfather 3SG-PASS-kill=*RAKA'E*  
 'My grandfather was killed a long time ago.'

The particle *raka'e* can appear in an embedded sentence. Thus, Luisa can report the event in (38) by uttering (39), the Attitude-holder now identified with the matrix subject, to whom the reportative-based evidence is attributed.

- (39) María o-mombe'u chéve i-jaguelo o-je-juka=*raka'e*.  
 María 3SG-tell 1SG.DAT 3SG.POSS-grandfather 3SG-PASS-kill=*RAKA'E*  
 'María told me that, according to her source, her grandfather got killed a long time ago.'

We note furthermore that embedded *raka'e*, like embedded *ra'e*, is unacceptable with the embedding verb (*oi*)*mõ'a* if the subordinator *ha* is present, but acceptable if *ha* is absent, in which case *raka'e* is speaker-oriented, not matrix-subject oriented). See the contrast in (40), compared with *ra'e* in (33) and (34). As in the case of embedded *ra'e*, the data with embedded *raka'e* support a syntactic representation of the Att-C and EA projection in the left periphery of the CP complement of attitudinal embedding verbs, where the presence of a C-domain is flagged by the presence of the subordinator *ha* in Paraguayan Guaraní. The account provided for the paradigm with *ra'e* in (33) and (34) applies directly to the paradigm in (40).

- (40) a. \*María oi-mõ'a i-jaguelo o-je-juka ha=*raka'e*.  
 María 3SG-believe 3SG.POSS-grandfather 3SG-PASS-kill SUB=*RAKA'E*  
 b. María oi-mõ'a i-jaguelo o-je-juka=*raka'e*.  
 'María believes her grandfather was killed a long time ago, according to my source.'

*Raka'e*, like *ra'e*, has a certain mobility within the IP; it is stressless and forms a prosodic unit with the preceding stressed item. Thus, *raka'e* can also appear right-adjacent to the subject, identifying it as the focused constituent of the sentence.

(i) Mcal. López o-mano=*raka'e* Guerra Guasú-pe.  
 Mcal. López 3SG-died=*RAKA'E* big war-LOC  
 'Mcal. López died long time ago in the big war.'

<sup>33</sup>As a continuation of context C1, the non-evidential distal marker *va'ekue* would be appropriate instead of *raka'e*.



- (41) Che aguelo=*raka'e* o-mano Guerra Guasu.  
 1SG.POSS grandfather=RAKA'E 3SG-die big war  
 'It was my grandfather that died in the big war, according to my source, a long time ago.'

Like *ra'e* (see footnote 31), *raka'e* can appear in questions. The excerpt in (42) was found in the newspaper ABC Color, July 26, 2016. The mother's (implicit) answer to (42a) justifies the followup questions in (42b), as well as in (42c). The use of *raka'e* in (42b) and (42c) is licensed because the speaker has reportative information for the presupposed content of the questions (the source being the mother). This naturally produced discourse sample is particularly interesting because the speaker asking the question was a participant in an event that took place a long time ago, but has no memory of it (42b), or only a distant memory of it (42c).

- (42) a. Che sy che=piko a-kambu va'eku che-michĩete-pe?  
 1SG.POSS mother, 1SG=INT 1SG-breast.feed DISTAL.PST 1SG-tiny-LOC  
 'Mother, did you breast-feed me when I was an infant?'  
 b. Mboy jasy=pa a-kambu=*raka'e*?  
 How much time=INT 1SG-breast.feed=RAKA'E  
 'For how long did I breast-feed long time ago (when I was an infant)?'  
 c. Che-rasy-rei-pá=pa=*raka'e*, mba'ére?  
 1SG-sick-easily-ASP=INT=RAKA'E for what reason  
 'I got sick easily long time ago (when I was an infant), why?'

This example shows that not only does *raka'e* contribute to the distal temporal interpretation of the described event, but it can, at least in certain contexts, also serve the function of evoking a distal event in memory, very much like what Ayala 1996 describes for the demonstrative *ako*, as in examples (22)–(23).<sup>34</sup> It is thus very tempting to analyze *raka'e* as arising, perhaps historically, from the morphological composition of the distal demonstrative *ak(o)* and an evidential morpheme *ra'e*. With this in mind, we turn to the analysis of *raka'e*.

### 8.2 The analysis of *raka'e*

We propose that the following two semantic properties of *raka'e* are intimately related:

- (43) a. The described event is temporally distal with respect to Eval-Time.  
 b. The Att-H's source of evidence is reportative.

Recall that in the case of *ra'e*, the deictic feature [+proximate] and the person feature [+participant] are realized on one and the same functional category, namely EA, and EA establishes a relation between itself and the Att-C above it. In the case of *raka'e*, we propose that the deictic and the event role features are realized on two distinct functional projections: the deictic features a deixis projection (DX) that establishes a temporal relation between the described event and the attitude event, and the event-role features on an evidential projection (EA), with a syntactically realized

<sup>34</sup>Velázquez-Castillo refers to this property of *raka'e* as “delayed realization”.

experiencer of EA whose event role is constrained by the person feature on EA. The two relations are constrained by the *Homorganic Condition* on features in (24): if DX is specified as [+distal], then EA must be specified as [–author].

- (44) *Raka'e* requires that DX be specified as [+distal] and the EA event as [–author], a combination congruent with the Homorganic Condition (24).

We propose that the DX projection combines with the vP, which semantically contributes an event predicate. In other words, DX is located below Viewpoint Aspect, whatever its precise location in the Paraguayan Guaraní clausal spine is. This allows for the semantic content of DX to act as a modifier of the predicate of events denoted by the vP. This is not unlike the demonstrative *ako* discussed in section 2.2. Demonstrative *ako* is specified as [+distal] and modifies a predicate of events, giving an interpretation of a distal event in the addressee's memory. As mentioned earlier, we speculate that the *-ak* piece in *raka'e* is possibly historically related to the demonstrative *ako*.<sup>35</sup>

Like *ra'e*, *raka'e* is a stressless particle that right-adjoins to vP or to the focused constituent within IP in the overt syntax. At LF, *raka'e* adjoins first to the DX above it and then to the EA above DX, licensing and restricting the interpretation of both elements. The syntactic derivation is summarized in (45).

- (45) a. *Raka'e*, like *ra'e*, is contained within the IP in the overt syntax (adjoined to vP or to the focused constituent).  
 b. vP merges with DX, DX merges with IP, IP merges with EA, and EA merges with Att-C.  
 c. At LF, *raka'e* adjoins first to DX, forcing DX to be specified with the interpretable [+distal] feature. It then adjoins to EA, forcing EA (and therefore its *pro* subject) to be specified with the interpretable feature [–author].  
 d. the *pro* subject of EA is bound by  $pro_s$  in the Att-C above it.

This gives the structure in (46). The *pro* subject of EA is referentially controlled by the Att-H *pro* above it. (As usual, we notate the referential dependency with underlines.)

- (46) [ $pro_s$   $pro_T$  [ $pro_{[-AUTHOR]}$  [*raka'e* EA [I [*raka'e* DX<sub>[+DISTAL]</sub>] [<sub>VP</sub> ...XP<sub>F</sub>... *raka'e* ]...]

This structure constrains the interpretation of sentences with *raka'e* as stated in (47).

- (47) a. Given the [–author] feature on the subject of EA, the Att-H  $pro_s$  (the speaker, in case of root *raka'e* and the matrix subject, in the case of embedded *raka'e*) is interpreted as the recipient of the evidence. The reportative evidential nature of *raka'e* is therefore captured.  
 b. Given the [+distal] feature of DX, the described event is interpreted as temporally distal to the Attitude event above it (i.e., distal with respect to the speech time in the case of root clauses, and distal to the matrix event time in the case of embedded

<sup>35</sup>A reviewer asks why the [+distal] feature on *raka'e* is interpreted as past rather than future with respect to the speech event. The same question arises for demonstrative *ako*. While we do not have an answer to that question, it is most likely part of a more general question, namely why a modal is required in order to obtain the future meaning in Paraguayan Guaraní; neither temporal adverbials nor context is sufficient (see section 2.1), nor is deixis.

clauses). The remote past interpretation of the described event with respect to the Attitude event above it follows as an inference from this relation (as in the case of *ra'e*).

To recapitulate, in the proposed analysis, the evidential–temporal connection is captured by two homorganic features [+distal, –author], which, in the case of *raka'e* (unlike the case of *ra'e*), is spread across two distinct functional projections: the [+distal] feature on a DX projection that combines with the *v*P (the described event) and the [–author] feature on EA, giving rise to the interpretations in (47). Since the deictic feature in the case of *raka'e* is low in the clausal structure, it restricts the temporal relation between the attitude event and the described event. Thus, *raka'e*'s temporal import is distinct from that of *ra'e*.

## 9. A SKETCH OF A FORMAL SEMANTICS FOR *RA'E* AND *RAKA'E*

We have discussed two properties of the evidential morphemes *ra'e* and *raka'e*: the type of indirect evidence they encode and their effect on the temporal interpretation of sentences. We now consider how the syntax we have proposed encodes these meanings. Recall that according to our earlier proposal, the evidential and temporal meaning is distributed among the functional head EA in the CP domain of the clause, the DX projection (when present), and the features on the particles themselves.

We propose that the core semantics of EA in indirect evidentials – at least its not-at-issue contribution – is as shown in (48). EA is a null, semi-functional lexical item, lexically encoding the meaning that an attitude holder (*x*, syntactically represented by the *pro* in the specifier of EA) has evidence for the prejacent proposition (*p*, syntactically represented by the IP complement of EA). This is a general meaning covering both reportative and inferential evidentials, and within the latter type, both inference from result and conjectures. As we suggested in (11), in purely reportative or purely inferential evidentials, the attitude event (*e'* in (48)) could be further restricted to a speech event or a thought event, respectively.<sup>36</sup> To distinguish the two types of inferential evidentials, the attitude event (*e'* in (48)) could be further restricted to being perception-based or purely belief-based, something not further discussed here. We similarly do not discuss the semantics of direct evidentials, beyond noting that, in accordance with (11), instead of an attitude event (*e'*), EA introduces a perception event.

- (48) EA(p)(x):  $\exists e \exists e'$  [*x* is a participant in *e'* & *e'* is an attitude event & *e'* causes *e* & *x*-has-evidence-for-*p*(*e*)]

We postulate that an EA head, that is, a lexical item with the lexical semantics in (48), is present in the syntax of indirect evidentials. This departs from previous semantic accounts, which introduce an EA event only in the lexical semantics of individual

<sup>36</sup>In the case of the purely reportative *raka'e*, we did not suggest that the attitude event is restricted to speech, in order to be able to provide a uniform account with *ra'e*, as they are part of a single evidential system, and may also be morphologically related.

evidential morphemes (Chung 2007, Lee 2013, Smirnova 2013, Koev 2017; see Speas 2018 for a recent review.) We see two advantages in encoding the EA syntactically and separately from the evidential morphemes themselves. The first advantage is conceptual: this move allows us to separate the common meaning of indirect evidentials – in our particular case, the common meaning of *ra'e* and *raka'e* – from the more specific meanings that these morphemes contribute, simplifying their lexical semantics and isolating the more general grammatical contribution in the lexical semantics of EA. For this reason, we consider EA to be a lexical item itself, realized in the syntax independently of the evidential morphemes. The second advantage of syntactically representing EA is empirical, having to do with the correlation between the orientation of embedded *ra'e* and the presence or absence of the subordinator *ha*; this was discussed in detail in section 7.

Finally, note that the meaning of EA in (48) is not-at-issue. The claim that evidence type is not-at-issue conforms to virtually every account of the semantics of evidentials starting with Izvorski (1997), whether the account is modal (Matthewson et al. 2007, Rullmann et al. 2008, Faller 2011, Smirnova 2013) or not (Murray 2010, Koev 2017).<sup>37</sup>

We next develop an explicit syntax–semantics mapping for sentences with *ra'e* and *raka'e*, at least as far as the properties under consideration in this paper are concerned. We discuss in turn for each morpheme how the type of evidence is determined, and how the temporal contribution is derived. Finally, we turn briefly to the question of what the at-issue meaning contribution of evidentials is.

### 9.1 *Ra'e*: type of evidence and temporal interpretation

Recall that *ra'e* is a general indirect evidential, of a type commonly found crosslinguistically, that covers both reportative and inferential evidence. We proposed to model this type of indirect evidential through the person feature [+participant]. *Ra'e* adjoins to EA and provides it with a [+participant] feature. The content of the EA functional head as in (48), and the interpretable [+participant] feature it now bears, restrict the type of evidence that sentences with *ra'e* admit. The feature [+participant] requires that the evidence be obtained on the basis of a speech or a thought event in which the *pro* subject of EA is a participant (see (11b.iii)). This meaning component contributed by *ra'e* is added to the core not-at-issue meaning of EA, as shown in (49) with the contribution of *ra'e* in boldface. Note that person features on nominals are commonly treated as contributing not-at-issue meanings (e.g., Schlenker 1999, 2003, Heim 2008, Sudo 2012). Here we extend this semantic role of person features – the role of contributing not-at-issue meanings – to the interpretable [+participant] person feature on EA.

<sup>37</sup>We set aside the question of whether the evidential meaning is best described as a presupposition (Izvorski 1997, Matthewson et al. 2007) or as some other type of not-at-issue contribution: a sincerity condition (Faller 2011), or a conventional implicature (Koev 2017).

- (49) [*ra'e* EA <sub>[+PART]</sub>](p)(x):  $\exists e \exists e'$  [**x is a participant in *e'*** & *e'* is an attitude event & *e'* causes *e* & x-has-evidence-for-p(*e*)] (to be modified)  
 Informally: as the result of an attitude event (speech or thought) in which *x* is a participant, *x* has evidence for *p*; or, in short: *x* acquires evidence for *p*.

Whether *e'* is a speech or a thought event, and whether [+participant] is interpreted as a recipient or an author, determines whether the type of evidence the *pro* subject has is reportative or inferential. If *e'* is a speech event in which the speaker is a recipient (e.g., *e'* is the event of María saying to the speaker that Kalo is at home), then the evidence is reportative. If *e'* is a thought event in which the speaker is an author, then the evidence is inferential. We emphasize that the inferential and reportative readings associated with *ra'e* are directly linked to the person feature [+participant]. This line of analysis opens up the possibility that indirect evidentials that are lexically restricted to only inferential or only reportative meanings are restricted in this way because the interpretable person feature on the EA projection is further specified as [+author] or as [-author], respectively. In effect, this is what we proposed in (11).

Another question arises at this point. Why is it that when *e'* is a speech event, the *pro* subject is interpreted as a recipient rather than as an author? The answer derives from what unifies the reportative and inferential readings so that they are commonly expressed crosslinguistically with the same element (e.g., *ra'e* in Paraguayan Guaraní, *apparently* in English). As (49) states, *e'* causes *e* – the event of speaker's having evidence for *p*. As a participant in *e'*, the speaker must therefore not already have evidence for *p*. This requires that with a speech event, the *pro* subject must be a recipient rather than an author.

Another point about (49) requires clarification. The descriptive content of *e'* (the speech or thought event that forms the basis for the evidential attitude) and the proposition *p* need to be related, but we leave the precise relation unspecified in the lexical entries here. If *e'* is a speech event in which the speaker hears that *q*, or *e'* is a thought event in which the speaker infers that *q*, then either  $q = p$  or  $q \Rightarrow p$ . For instance, if María tells the speaker that Kalo is in Paris, the speaker can acceptably say both *ra'e* (*Kalo is in Paris*) and *ra'e* (*Kalo is in Europe*). Similarly, if the speaker infers that Kalo has broken the vase in the morning, both *ra'e* (*Kalo broke the vase in the morning*) and *ra'e* (*Kalo broke the vase*) are appropriate uses of the indirect evidential.

Finally, note that besides the [+participant] feature, *ra'e* contributes another aspect of meaning: the inference must be from result. What this suggests is that the content of EA is even more elaborate, making reference to a perceptual event in which the attitude holder perceives another event (e.g., the speaker sees Kalo's hat on the table), and concludes that the perceived event (Kalo's hat being on the table) is a plausible result of the event described in the prejacent proposition *p* (e.g., Kalo's being home), see (13). Thus, *ra'e*'s restriction to perceptually obtained evidence is not universal.<sup>38</sup>

<sup>38</sup>Also, *ra'e* allows inference from perceived results but not from conjectural inferences. Is this coincidental to the fact that it also has a reportative use? In other words, is the grouping of inference from results and reportative evidence to the exclusion of conjectural

Turning to the temporal contribution of *ra'e*, recall that Paraguayan Guaraní has no tense morphemes and that we also suggested that it has no tense in the semantic component either. Nevertheless, *ra'e* contributes to the temporal reference of sentences in which it appears. Specifically, it requires that the acquisition of evidence be recent to, or at, the evaluation time. We propose that this temporal interpretation is an inference from the person feature on the EA head. In particular, the interpretable feature [+participant] on EA is grammatically associated with a [+proximate] interpretation of the relation between the attitude event *e'* introduced in EA and the speech event. The feature [+proximate] contributes the additional meaning given in boldface in (50).

- (50) [*ra'e* EA <sub>[+PART, +PROXIMATE]</sub>] (p)(x):  $\exists e \exists e'$  [*x* is a participant in *e'* & *e'* is an attitude event & *e'* causes *e* & *x*-has-evidence-for-*p*(*e*) & ***e'* is proximate to *e*<sub>0</sub>**],  
 where *e*<sub>0</sub> is bound by the local evaluation event (the speech event in main clauses or the attitude event in complements to attitude predicate).

We emphasize that the two features [+participant] and [+proximate] are interpreted with respect to different aspects of the structure. The [+participant] feature specifies the role *pro* has with respect to EA, and thus it determines that the evidence is inferential or reportative, while the [+proximate] feature specifies the relation between the EA attitude event and the speech event (or more generally the matrix attitude event), thus determining, indirectly, and without any tense features, the temporal location of the EA event.

As we noted earlier, there have been accounts of evidentials in other languages that have attributed tense semantics to evidential morphemes. Unlike the proposal here, which derives the temporal meaning as an inference from the evidential meaning, these semantic accounts suggest that evidentials are special tense markers that exist alongside regular tenses and encode in their lexical semantics reference to the (space-)time of an EA event. In fact, if EA is a semi-lexical head, there is no principled reason why in a language with tense, EA could not combine with tense. A plausible example of such a system is Matses (a Panoan language spoken in Amazonian Peru and Brazil), as described by Fleck (2007) (but see Arregui et al. 2017 for an alternative view).

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inference natural, or could there be an evidential that allows reportative and conjectural uses but prohibits inference from results? We suggest that the grouping of inference from result and reportative evidence to the exclusion of conjectural inference can be derived from restricting the attitude event (*e'*) to being perception-based. The attitude holder either observes an event that leads to the thought or participates as a recipient in a speech event, which is itself a perceptual event. Thus, the perceptual property of the evidence extends naturally to both the inferential and reportative uses of *ra'e*. This predicts that if an evidential has both a reportative and an inferential interpretation, and the inferential interpretation is limited to one type, it will be limited to perceptual-base inferences, rather than purely conjectural inferences.

## 9.2 *Raka'e*: type of evidence and temporal interpretation

We propose that the evidential marker *raka'e* incorporates the semantic contribution of *ra'e* and the distal demonstrative *ako* seen elsewhere in the grammar of Paraguayan Guaraní (see section 4.2, examples (22) and (23)). The use of *raka'e* is associated with a deictic projection (DX) with a [+distal] feature. The feature itself contributes the presupposition that the described event is spatially distal from the local attitude event.<sup>39</sup>

- (51) [[DX<sub>[+DISTAL]</sub>]] (P)(e) is defined iff *e* is distal to *e*<sub>0</sub>  
 When defined, [[DX<sub>[+DISTAL]</sub>]] (P)(e) = 1 iff P(e) = 1

The DX [+distal] aspect of present in sentences with *raka'e* is in some ways similar to Faller's (2004) analysis of the *-sqa* evidential in Cuzco Quechua. On that account, *-sqa* is a spatio-temporal marker that encodes a temporal and spatial deictic relation between the described event and the perceptual space of the attitude holder. This differs from our account in that the temporal contribution is part of the lexical semantics of *-sqa* (i.e., it is a special past tense marker), and in the case of Paraguayan Guaraní, DX establishes a temporal relation only between events, rather than between times.

The rest of the semantic composition proceeds as expected. The only difference between the contribution of the [*raka'e* EA] complex and the [*ra'e* EA] complex is in the person features, with consequences for the evidential content. [*raka'e* EA] is marked [−author], due to the homorganic restriction in (24), and the evidence type can only be reportative (since inferential evidence requires the *pro* subject of EA to be [+author]). There is no temporal inference concerning the EA attitude event, since (24) prevents the [+proximate] feature from appearing on EA. The boldface part of (52) is *raka'e*'s contribution to the interpretation of EA, a restriction of the not-at-issue meaning.

- (52) [*raka'e* EA [+part][−author]] (p)(x):  
 ∃e ∃e' [x is a recipient in e' & e' is a speech event & e' causes e & x-has-evidence-for-p(e)]

## 9.3. *Ra'e* and *raka'e*: Further issues in evidential interpretation

So far we have discussed the not-at-issue contribution of evidential *ra'e* and *raka'e*. As for the assertive meaning, we surmise – though we have not examined this issue extensively – that a modal account for these evidentials might be appropriate, following one of the general approaches to evidentiality, as in Izvorski (1997), Matthewson et al. (2007), Faller (2011), Smirnova (2013), Arregui et al. (2017), among others. On such an approach, evidential *ra'e* and *raka'e* would, like typical epistemic modals, contribute meaning concerning the likelihood of the prejacent proposition *p* in view of what the attitude holder knows and considers evidence for *p*. As a particular subtype of an epistemic modal, evidential *ra'e* and *raka'e* would restrict the relevant body of knowledge to information obtained through a perceptual experience on the

<sup>39</sup>See Roberts (2002) on the presuppositional nature of the (non-)proximate feature of demonstratives.



part of the attitude holder (with further differences between the two particles, as discussed above).

The Paraguayan Guaraní data are consistent with an epistemic modal account: *ra'e* can be embedded under attitude predicates and it shifts its orientation to that of the matrix subject, it scopes over clause-mate negation, and its semantic contribution cannot be challenged by the addressee. These facts do not necessarily rule out a non-modal alternative (except an illocutionary operator as in Faller 2002, because of its problems with embeddability), perhaps as a not-at-issue content similar to appositives, as in the approach to evidentiality in Murray (2010), Koev (2017), among others. Such an alternative, however, would have particular difficulty with the obligatory shift of *ra'e* in attitude contexts, since appositives tend to either remain speaker-oriented in such cases, or at least only allow optional shift. But most importantly, such alternatives require that the speaker be committed to the truth of the prejacent, which does not appear to be the intuition that native speakers have about the reportative use of *ra'e* and reportative *raka'e*. In particular, these evidentials can combine with the reportative *ndaje*, in which case the speaker is clearly not committed to the truth of the prejacent proposition *p* (on *ndaje*, see footnote 17). On a modal account, there is no guarantee that the world of evaluation is among the worlds quantified over by the evidential, and correspondingly the prejacent proposition *p* is not asserted to be true. This captures well the variability in speaker commitment to *p*, relative to the strength of the evidence. On balance, the modal account of *ra'e* seems to fare better.

We do not formalize the assertive modal component of *ra'e* and *raka'e*, since this aspect of meaning is not where our main concern and contribution lie. The focus-sensitivity of these evidentials should also be captured in a full account of their meaning, but this is beyond the scope of the present article.

## 10. CONCLUSION

We have provided an account of the evidential–temporal connection in Paraguayan Guaraní, a language without tense. The model appeals to independently established morphosyntactic person features: the event-role features [ $\pm$  participant] and [ $\pm$  author], and the general deictic features [ $\pm$  proximate] and [ $\pm$  distal]. We have argued that the evidentials *ra'e* and *raka'e* can carry both features: an event-role feature and a deictic feature interpreted along the temporal dimension, and that the two features are constrained by the Homorganic Condition on feature combinations. In the case of *ra'e*, both the event-role feature [+participant] and the temporal deictic feature [+proximate] are realized on the same functional category, namely EA. These features ultimately constrain the evidential type encoded by the EA morpheme in association with *ra'e* and the temporal relation between the EA event and either the speech event (in the case of matrix *ra'e*) or the matrix attitude event (in the case of embedded *ra'e*). On the other hand, in the case of *raka'e*, the features are scattered. The [+distal] feature is realized on a demonstrative functional head (DX) that combines with vP (akin to the demonstrative *ako*), while the event role feature is realized on EA, which is predicted to be [–author] given the Homorganic Condition. It follows



that *raka'e* constrains the temporal relation between the described event and either the speech event (in the case of matrix *raka'e*) or the matrix attitude event (in the case of subordinate *raka'e*). The proposed analyses correctly capture the fact that in case of embedded *ra'e* and *raka'e*, the evidential orientation shifts to the matrix subject concomitantly with the temporal orientation.

We recognize EA as an abstract morphosyntactic morpheme that projects below the Attitude-Center (Att-C) at the left edge of the clausal periphery. We have argued that, in addition to the conceptual advantage of postulating such a morpheme, there is a syntactic argument for it in Paraguayan Guaraní, namely that its presence/absence in subordinate clauses is governed by the presence or absence of the subordinator *ha*, which in turn licenses the Comp domain where EA and its associated Att-C are located.

Finally, we note that the analysis of EA as a semi-lexical projection does not preclude that in a language with tense, EA can combine with T. The Matses language, described by Fleck (2007), might very well be a case in point. As expected, and unlike Paraguayan Guaraní, in Matses the proximate/distal temporal relations between events are not restricted by the evidential type.

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